PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

YU, Shaohua

Appln. No.: unknown

Confirmation No. unknown

Group Art Unit: unknown

Filed: March 27, 2001

Examiner: unknown

For: INTERFACING APPARATUS AND METHOD FOR ADAPTING ETHERNET DIRECTLY TO PHYSICAL CHANNEL

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination and calculation of the filing fee, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Amend the specification by inserting before the first line the sentence:

This is a Continuation-In-Part of Application No. PCT/CN00/00211 filed July 26, 2000, the disclosure of which is incorporated herein by reference.

IN THE CLAIMS:

Please cancel claim 91 without prejudice or disclaimer.

6. (Amended) The data transmission apparatus according to claim 3, wherein said first receiving means is a first FIFO for receiving and buffering the input data packets, and adapting the rate of said upper layer side device to the rate of said lower layer side device.

15. (Amended) The data transmission apparatus according to claim 3, wherein the end flag of a previous second type of frame is the start flag of a subsequent second type of frame.

18. (Amended) The data transmission apparatus according to claim 1, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1) in a way of single virtual container or concatenation.

19. (Amended) The data transmission apparatus according to claim 1, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

20. (Amended) The data transmission apparatus according to claim 1, wherein said upper layer is Ethernet MAC layer, said first type of frames are MAC frames, said second type of frames are LAPS frames, and the third type of frames are SDH/SONET frames.

21. (Amended) The data transmission apparatus according to claim 1, wherein said data transmission apparatus is built in a SDH/SONET transmission device.

22. (Amended) The data transmission apparatus according to claim 1, wherein said data transmission apparatus is built in an Ethernet switch device.

23. (Amended) The data transmission apparatus according to claim 1, wherein said data transmission apparatus is an Ethernet switch device or an Ethernet/Fast Ethernet/Gigabit Ethernet L2/L3 switch or associated router.

25. (Amended) The data transmission apparatus according to claim 19, wherein said data transmission apparatus maps the received MAC/GMAC frame from MII/GMII to the SDH/SONET block through transformer synchronously.

26. (Amended) The data transmission apparatus according to claim 19, wherein said data transmission apparatus, for the purpose of rate adaptation, adds the programmable rate adaptation Gap fill byte (Oxdd) into said second type of frames in a form of {Ox7d, Oxdd} if necessary.

32. (Amended) The data transmission method according to claim 29, further comprising a step of performing scrambling to said second type of frames with a frame synchronous scrambling sequence generated from a polynomial $g(x)=x^7+1$.

38. (Amended) The data transmission method according to claim 29, wherein the end flag of a previous frame is the start flag of a subsequent frame.

40. (Amended) The data transmission method according to claim 27, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1) in a way of single virtual container or concatenation.

41. (Amended) The data transmission method according to claim 27, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

42. (Amended) The data transmission method according to claim 27, wherein said upper layer is Ethernet MAC/GMAC layer, said first type of frames are MAC/GMAC frames, said second type of frames are LAPS frames, and the third type of frames are SDH/SONET frames.

44. (Amended) The data transmission method according to claim 41, further comprises a step of synchronizing the received MAC/GMAC frame from MII/GMII to the SDH/SONET block through transformer.

45. (Amended) The data transmission method according to claim 41, for the purpose of rate adaptation, further comprises a step of adding the programmable rate adaptation Gap fill byte (Oxdd) into said second type of frames in a form of {Ox7d, Oxdd}.

61. (Amended) The data transmission apparatus according to claim 46, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1).

62. (Amended) The data transmission apparatus according to claim 46, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

63. (Amended) The data transmission apparatus according to claim 46, wherein said upper layer is Ethernet MAC/GMAC layer, said first type of frames are SDH/SONET frames, said second type of frames are LAPS frames, and the third type of frames are MAC/GMAC frames.

64. (Amended) The data transmission apparatus according to claim 46, wherein said data transmission apparatus is built in a SDH/SONET transmission device.

65. (Amended) The data transmission apparatus according to claim 46, wherein said data transmission apparatus is built in an Ethernet switch device.

66. (Amended) The data transmission apparatus according to claim 46, wherein said data transmission apparatus is an Ethernet switch device or an Ethernet/Fast Ethernet/Gigabit Ethernet L2/L3 switch or associated router.

67. (Amended) The data transmission apparatus according to claim 46, wherein said Ethernet switch device is an Ethernet/Fast Ethernet/Gigabit Ethernet L2/L3 switch or associated router.

68. (Amended) The data transmission apparatus according to claim 62, wherein said data transmission apparatus, for the purpose of rate adaptation, removes the programmable rate adaptation Gap fill byte existed in said second type of frames in a form of {Ox7d, Oxdd}.

69. (Amended) The data transmission apparatus according to claim 62, wherein said data transmission apparatus synchronizes the LAPS information field (MAC/GMAC frame) from SDH/SONET block to-RX_CLK at MII/GMII interface through transformer.

75. (Amended) The data transmission method according to claim 72, further comprises of a step of receiving and buffering the input data packets, and adapting the rate of said lower layer side device to the rate of said upper layer side device.

84. (Amended) The data transmission method according to claim 70, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1) in a way of single virtual container or concatenation.

85. (Amended) The data transmission method according to claim 70, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

86. (Amended) The data transmission method according to claim 70, wherein said upper layer is Ethernet MAC/GAMC layer, said first type of frames are SDH/SONET frames, said second type of frames are LAPS frames, and the third type of frames are MAC/GMAC frames.

88. (Amended) The data transmission method according to claim 85, for the purpose of rate adaptation, further comprises a step of removing the programmable rate adaptation Gap fill byte existed in said second type of frames in a form of {Ox7d, Oxdd}.

89. (Amended) The data transmission method according to claim 85, further comprises a step of synchronizing the LAPS information field (MAC/GMAC frame) from SDH/SONET block to-RX_CLK at MII/GMII interface through transformer.

91. (Amended) The data interfacing apparatus according to claim 46, further comprising a line side interfacing means for transmitting/receiving data packets from lower layer side device.

92. (Amended) The data interfacing apparatus according to claim 91, further comprising a transforming means for synchronizing the data packets of said upper layer side device with data packets input to said first receiving means in the transmission direction, and for synchronizing the extracted data packets from said second transmitting means with the data packets of said upper layer side device in the receiving direction.

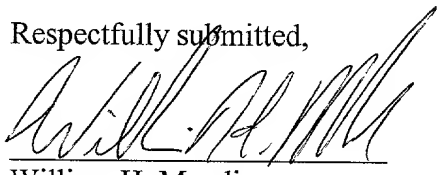
93. (Amended) The data interfacing apparatus according to claim 92, further comprising a microprocessor interfacing means for enabling said data interfacing apparatus to access all registers within it; a JTAG port for testing; and a GPIO register for temporal buffering input/output configuration data.

REMARKS

By this Preliminary Amendment, Applicant has eliminated the multiple dependency of the claims, has re-numbered claims 89-90 and 92-94, and has cancelled claim 91 without prejudice. Thus, claims 1-89 and 91-93 are now pending.

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

IN THE CLAIMS:

The claims are amended as follows:

6. (Amended) The data transmission apparatus according to claim 3 [or 5], wherein said first receiving means is a first FIFO for receiving and buffering the input data packets, and adapting the rate of said upper layer side device to the rate of said lower layer side device.

15. (Amended) The data transmission apparatus according to claim 3 [or 5], wherein the end flag of a previous second type of frame is the start flag of a subsequent second type of frame.

18. (Amended) The data transmission apparatus according to [any one of the preceding claims] claim 1, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1) in a way of single virtual container or concatenation.

19. (Amended) The data transmission apparatus according to [any one of the claims 1 to 17] claim 1, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

20. (Amended) The data transmission apparatus according to [any one of the claims 1 to

17] claim 1, wherein said upper layer is Ethernet MAC layer, said first type of frames are MAC frames, said second type of frames are LAPS frames, and the third type of frames are SDH/SONET frames.

21. (Amended) The data transmission apparatus according to [any one of the claims 1 to 17] claim 1, wherein said data transmission apparatus is built in a SDH/SONET transmission device.

22. (Amended) The data transmission apparatus according to [any one of the claims 1 to 17] claim 1, wherein said data transmission apparatus is built in an Ethernet switch device.

23. (Amended) The data transmission apparatus according to [any one of the claims 1 to 17] claim 1, wherein said data transmission apparatus is an Ethernet switch device or an Ethernet/Fast Ethernet/Gigabit Ethernet L2/L3 switch or associated router.

25. (Amended) The data transmission apparatus according to [any one of the claims 19 to 24] claim 19, wherein said data transmission apparatus maps the received MAC/GMAC frame from MII/GMII to the SDH/SONET block through transformer synchronously.

26. (Amended) The data transmission apparatus according to [any one of the claims 19 to 24] claim 19, wherein said data transmission apparatus, for the purpose of rate adaptation, adds the programmable rate adaptation Gap fill byte (Oxdd) into said second type of frames in a form of {Ox7d, Oxdd} if necessary.

32. (Amended) The data transmission method according to claim 29 [or 31], further comprising a step of performing scrambling to said second type of frames with a frame synchronous scrambling sequence generated from a polynomial $g(x)=x^7+1$.

38. (Amended) The data transmission method according to claim 29 [or 31], wherein the end flag of a previous frame is the start flag of a subsequent frame.

40. (Amended) The data transmission method according to [any one of the claims 27 to 39] claim 27, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1) in a way of single virtual container or concatenation.

41. (Amended) The data transmission method according to [any one of the claims 27 to 39] claim 27, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

42. (Amended) The data transmission method according to [any one of the claims 27 to 39] claim 27, wherein said upper layer is Ethernet MAC/GMAC layer, said first type of frames are MAC/GMAC frames, said second type of frames are LAPS frames, and the third type of frames are SDH/SONET frames.

44. (Amended) The data transmission method according to [any one of the claims 41 to 43] claim 41, further comprises a step of synchronizing the received MAC/GMAC frame from MII/GMII to the SDH/SONET block through transformer.

45. (Amended) The data transmission method according to [any one of the claims 41 to 43] claim 41, for the purpose of rate adaptation, further comprises a step of adding the

programmable rate adaptation Gap fill byte (Oxdd) into said second type of frames in a form of {Ox7d, Oxdd}.

61. (Amended) The data transmission apparatus according to [any one of the claims 46 to 60] claim 46, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1).

62. (Amended) The data transmission apparatus according to [any one of the claims 46 to 60] claim 46, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

63. (Amended) The data transmission apparatus according to [any one of the claims 46 to 60] claim 46, wherein said upper layer is Ethernet MAC/GMAC layer, said first type of frames are SDH/SONET frames, said second type of frames are LAPS frames, and the third type of frames are MAC/GMAC frames.

64. (Amended) The data transmission apparatus according to [any one of the claims 46 to 60] claim 46, wherein said data transmission apparatus is built in a SDH/SONET transmission device.

65. (Amended) The data transmission apparatus according to [any one of the claims 46 to 60] claim 46, wherein said data transmission apparatus is built in an Ethernet switch device.

66. (Amended) The data transmission apparatus according to [any one of the claims 46 to 60] claim 46, wherein said data transmission apparatus is an Ethernet switch device or an Ethernet/Fast Ethernet/Gigabit Ethernet L2/L3 switch or associated router.

67. (Amended) The data transmission apparatus according to [any one of the claims 46 to 60] claim 46, wherein said Ethernet switch device is an Ethernet/Fast Ethernet/Gigabit Ethernet

L2/L3 switch or associated router.

68. (Amended) The data transmission apparatus according to [any one of the claims 62 to 67] claim 62, wherein said data transmission apparatus, for the purpose of rate adaptation, removes the programmable rate adaptation Gap fill byte existed in said second type of frames in a form of {Ox7d, Oxdd}.

69. (Amended) The data transmission apparatus according to [any one of the claims 62 to 67] claim 62, wherein said data transmission apparatus synchronizes the LAPS information field (MAC/GMAC frame) from SDH/SONET block to-RX_CLK at MII/GMII interface through transformer.

75. (Amended) The data transmission method according to claim 72 [or 74], further comprises of a step of receiving and buffering the input data packets, and adapting the rate of said lower layer side device to the rate of said upper layer side device.

84. (Amended) The data transmission method according to [any one of the claims 70 to 83] claim 70, wherein said overheads include Path Trace(J1), path BIP-8(B3), signal label(C2) Path status(G1) in a way of single virtual container or concatenation.

85. (Amended) The data transmission method according to [any one of the claims 70 to 83] claim 70, wherein said physics layer is of SDH/SONET or simplified SDH/SONET.

86. (Amended) The data transmission method according to [any one of the claims 70 to 83] claim 70, wherein said upper layer is Ethernet MAC/GAMC layer, said first type of frames

are SDH/SONET frames, said second type of frames are LAPS frames, and the third type of frames are MAC/GMAC frames.

[89.] 88. (Amended) The data transmission method according to [any one of the claims 85 to 87] claim 85, for the purpose of rate adaptation, further comprises a step of removing the programmable rate adaptation Gap fill byte existed in said second type of frames in a form of {Ox7d, Oxdd}.

[90.] 89. (Amended) The data transmission method according to [any one of the claims 85 to 87] claim 85, further comprises a step of synchronizing the LAPS information field (MAC/GMAC frame) from SDH/SONET block to-RX_CLK at MII/GMII interface through transformer.

Claim 91 is canceled.

[92.] 91. (Amended) The data interfacing apparatus according to claim [91] 46, further comprising a line side interfacing means for transmitting/receiving data packets from lower layer side device.

[93.] 92. (Amended) The data interfacing apparatus according to claim [92] 91, further comprising a transforming means for synchronizing the data packets of said upper layer side device with data packets input to said first receiving means in the transmission direction, and for synchronizing the extracted data packets from said second transmitting means with the data packets of said upper layer side device in the receiving direction.

[94.] 93. (Amended) The data interfacing apparatus according to claim [93] 92, further comprising a microprocessor interfacing means for enabling said data interfacing apparatus to access all registers within it; a JTAG port for testing; and a GPIO register for temporal buffering input/output configuration data.